

IN THE CLAIMS:

1. (Currently Amended) A method for an automatic extraction of the structure of a video sequence that corresponds to successive frames, comprising the following steps:

(1) a shot detection step, provided for detecting the boundaries between consecutive shots, a shot being a set of contiguous frames without editing effects;

(2) a partitioning step, provided for splitting each shot into sub-entities, called micro-segments comprising a plurality of temporal sub-entities, ~~each of the micro-segments having a level of homogeneity computed on a motion histogram;~~

(3) a clustering step, provided for creating a final hierarchical structure of the processed video sequence.

2. (Previously Presented) A method for an automatic extraction of the structure of a video sequence that corresponds to successive frames, comprising the following steps:

(1) a shot detection step, provided for detecting the boundaries between consecutive shots, a shot being a set of contiguous frames without editing effects;

(2) a partitioning step, provided for splitting each shot into sub-entities, called micro-segments;

(3) a clustering step, provided for creating a final hierarchical structure of the processed video sequence;

wherein said shot detection step uses a similarity criterion based on a computation of the mean displaced frame

difference curve and the detection of the highest peaks of said curve.

3. (Previously Presented) A method according to claim 1, wherein said partitioning step uses a criterion involving the level of homogeneity on the motion parameters of the camera used to generate the processed video sequence.

C'  
4. (Currently Amended) A method according to claim 1, wherein ~~the~~ a motion histogram on which ~~the~~ at the homogeneity of a micro-segment is computed includes a plurality of bins, each bin of which shows the percentage of frames with a specific type of motion.

5. (Previously Presented) A method according to claim 4, wherein, if the bins of the histogram are not equal to either 1 or 0, i.e. present intermediate values indicating that a micro-segment is not perfectly homogeneous, a distance between two micro-segments is computed, based on the homogeneity of the micro-segments union, said homogeneity being itself deduced from the histogram of a micro-segment and the different motion types, the homogeneity of a shot being equal to the homogeneity of its micro-segments weighted by the length of each of them, a fusion between any pair of micro-segments being decided or not according to the value of the homogeneity of the shot with respect to a predefined threshold  $T(H)$  and assuming that the selected micro-

segments have already been merged, and such a possible merging process between micro-segments ending when there is no further pair of neighboring micro-segments that can be merged.

6. (Currently Amended) A method for indexing data available in the form of a video sequence that corresponds to successive frames, comprising the following segmentation steps:

C' (1) a structuring step, provided for sub-dividing said sequence into consecutive shots and splitting each of said shots into sub-entities called micro-segments comprising a plurality of temporal sub-entities, ~~each of the micro segments having a level of homogeneity computed on a motion histogram;~~

(2) a clustering step, provided for creating on the basis of said segmentation a final hierarchical structure of the processed video sequence;

(3) an indexing step, provided for adding a label to each elements of said hierarchical structure.

7. (Original) A video indexing device including means for carrying out a method according to claim 6.

8. (Previously Presented) An image retrieval system including:

(1) means for carrying out an indexing method according to claim 6, for defining in a hierarchical fashion the structure of a video sequence that corresponds to successive

frames, giving an indexing label to each element of the hierarchical structure thus defined, and storing said labels;

(2) means for performing on the basis of the stored labels any image retrieval using one or several frames of said image to be retrieved.

9. (New) A method according to claim 1, each of the micro-segments having a level of homogeneity computed on a motion histogram.

10. (New) A method according to claim 6, each of the micro-segments having a level of homogeneity computed on a motion histogram.

11. (New) A method for an automatic extraction of the structure of a video sequence that corresponds to successive frames, comprising the following steps:

(1) a shot detection step, provided for detecting the boundaries between consecutive shots, a shot being a set of contiguous frames without editing effects;

(2) a partitioning step, provided for splitting each shot into sub-entities, called micro-segments comprising a plurality of temporal sub-entities, each of the micro-segments having a level of homogeneity computed on a motion histogram;

(3) a clustering step, provided for creating a final hierarchical structure of the processed video sequence;

C1 wherein the motion histogram on which the homogeneity of a micro-segment is computed includes a plurality of bins, each bin of which shows the percentage of frames with a specific type of motion.

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